

HADITHA GENERAL HOSPITAL
UNDER THE ECONOMIC SUPPORT FUND PROGRAM
HADITHA, IRAQ



SIGIR PA-08-132
JANUARY 23, 2009

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SIGIR

Special Inspector General for IRAQ Reconstruction

January 23, 2009

Haditha General Hospital

What SIGIR Found

On November 4, 2008, SIGIR performed an on-site assessment of the Haditha General Hospital project. Security conditions did not allow for an in-depth site visit; the inspection team was limited to only 45 minutes on site. The total revised cost of the contract was increased to \$5,033,791 and the contract completion date was extended from 16 February 2009 to 15 August 2009. Current construction practices are adequate, and the renovation and expansion should increase the number of patients the hospital can support and will improve the mechanical, electrical, and structural systems within the hospital.

The contractor had not yet provided the U.S. Army Corps of Engineers (USACE) with the design drawings for the new construction work based on the revised Statement of Work. The submittals were more than a month behind schedule and were not expected for at least another two weeks.

At the time of the site visit, only minor renovations had been completed at the hospital. Most of the renovations consisted of upgrades to the electrical system, including installing new main panels, fixtures, and ceiling fans; repairing the restroom facilities; repainting the interior and exterior; and repairing several doors and windows. Based on the site visit and the review of the USACE's quality assurance reports, SIGIR determined that the renovation work completed appeared adequately constructed and consistent with the contract's bill of quantities.

Sustainability was addressed in the contract requirements. The contract required a one-year warranty for all materials and equipment and commonly offered extended warranties for material, equipment, and machinery purchased. In addition, the contract required operations and maintenance manuals, written in Arabic and English, including standard operating procedures for all equipment and systems, and recommended spare parts lists for all equipment. Finally, the contract required the contractor to conduct specific operations and maintenance.

Because permanent power is unreliable in this area, the primary power source will need to be generators, which require a significant amount of diesel fuel to operate. The contractor had not calculated the amount of fuel required to run the generators 24 hours per day. This calculation should be completed during the design phase; however, as mentioned earlier, the design submittals are behind schedule.



Summary of Report: PA-08-132

Why SIGIR Did This Study

SIGIR is assessing projects funded under the Economic Support Fund program. The objective of this project was to renovate and expand the size of the Haditha General Hospital. The contract cost was \$3.7 million; however, shortly after the award, the hospital administrator decided that the contract did not adequately address many of the hospital's needs. This resulted in a modification that increased the total cost to \$5 million.

The objective of this project assessment was to provide real-time information on relief and reconstruction projects to interested parties to enable appropriate action, when warranted.

What SIGIR Recommends

This report does not contain any negative findings or recommendations for corrective action. Although management comments were not required, the appropriate Gulf Region Division personnel reviewed the report and found it to be factually correct.

For more information, contact SIGIR Public Affairs at (703) 428-1100 or PublicAffairs@sigir.mil



SPECIAL INSPECTOR GENERAL FOR IRAQ RECONSTRUCTION

January 23, 2009

MEMORANDUM FOR COMMANDING GENERAL, UNITED STATES CENTRAL
COMMAND
COMMANDING GENERAL, MULTI-NATIONAL FORCE-
IRAQ
COMMANDING GENERAL, GULF REGION DIVISION,
U.S. ARMY CORPS OF ENGINEERS
COMMANDING GENERAL, JOINT CONTRACTING
COMMAND-IRAQ/AFGHANISTAN
DIRECTOR, IRAQ TRANSITION ASSISTANCE OFFICE

SUBJECT: Report on Project Assessment of the Haditha General Hospital, Haditha, Iraq
(SIGIR Report Number PA-08-132)

We are providing this project assessment report for your information and use. We assessed the design and construction work being performed at the Haditha General Hospital, Haditha, Iraq to determine its status and whether objectives intended will be achieved. This assessment was made to provide you and other interested parties with real-time information on a relief and reconstruction project underway and in order to enable appropriate action to be taken, if warranted.

This report does not contain any negative findings or recommendations for corrective action. Although management comments were not required, the appropriate Gulf Region Division personnel reviewed the report and found it to be factually correct.

We appreciate the courtesies extended to our staff. If you have any questions please contact Mr. Brian Flynn at brian.flynn@iraq.centcom.mil or at DSN 318-239-2485. For public queries concerning this report, please contact SIGIR Public Affairs at publicaffairs@sigir.mil or at (703) 428-1100.

Stuart W. Bowen, Jr.
Inspector General

Special Inspector General for Iraq Reconstruction

SIGIR PA-08-132

January 23, 2008

Haditha General Hospital Under the Economic Support Fund Program Haditha, Iraq

Synopsis

Introduction. The Office of the Special Inspector General for Iraq Reconstruction (SIGIR) is assessing projects funded under the Economic Support Fund program to provide real-time relief and reconstruction information to interested parties to enable appropriate action, when warranted.

Project Objective. The Haditha General Hospital is a 100-bed facility serving the entire city of Haditha, which is located in the Anbar Province. This hospital suffered significant battle damage in 2005 when insurgents attacked Coalition Forces nearby. In May 2005, insurgents drove a Vehicle Borne Improvised Explosive Device into the perimeter wall of the Haditha General Hospital Complex. The explosion caused no casualties, but it destroyed the hospital's entire logistics and support facility, kitchen, laundry, storage room, and ward for private patients. The lack of storage facility required using patient care facilities for storage and reduced the hospital's in-patient capacity from 100 to approximately 60 beds.

On 11 December 2007, a contract for \$3,742,384 was awarded for the renovation of the Haditha General Hospital to a local contractor. However, shortly after awarding the contract, the hospital administrator determined that the contract, as written, did not adequately address many of the hospital's needs. In a subsequent meeting between the hospital administrator and U.S. representatives, the needs of the hospital were outlined, which resulted in a significant modification to the original contract. The total cost of the contract was increased to \$5,033,791.39, and the contract completion date was extended from 16 February 2009 to 15 August 2009.

As a result of the major revision of the original scope of work, this project is behind schedule. At the time of SIGIR's site visit, the contractor had performed only minor renovations to the hospital, such as upgrading the electrical system, repainting the interior and exterior, and repairing several doors and windows. No substantial new construction had been performed.

Project Assessment Objective. SIGIR conducted this limited scope assessment in accordance with the Quality Standards for Inspections issued by the Council of the Inspectors General on Integrity and Efficiency. The assessment team comprised two engineers/inspectors and two auditors/inspectors. Specifically, SIGIR determined whether:

1. Project components were adequately designed prior to construction or installation;
2. Construction or rehabilitation met the standards of the design;
3. The contractor's quality control program and the United States government's quality assurance program were adequate;

4. Project sustainability was addressed; and
5. Project results were consistent with original objectives.

Conclusions. The assessment determined that:

1. The contractor submitted a revised proposal for the renovations and additions to the original Haditha General Hospital project, which included preliminary floor plans for the proposed additions. The contract's bill of quantities provided enough information and detail for the contractor to renovate the hospital without detailed designs.

At the time of SIGIR's site visit on 4 November 2008, the contractor had not yet provided the U.S. Army Corps of Engineers with the required design drawings for the new construction work based on the revised Statement of Work. The submittals were more than a month behind schedule and were not expected for at least another two weeks.

2. At the time of SIGIR's site visit, it appeared that only minor renovations had been completed at the hospital. Most of the renovations were upgrades to the electrical system, including installing new main panels, fixtures, and ceiling fans; repairing the restroom facilities; repainting the interior and exterior; and repairing several doors and windows. Based on the site visit and the review of the U.S. Army Corps of Engineers' quality assurance reports, SIGIR's determined that the renovation work completed appeared adequately constructed and consistent with the contract's bill of quantities.
3. The contractor's quality control plan was adequate to guide the contractor's quality management program. The contract required that the contractor maintain weekly progress reports and construction inspection reports. After reviewing the contractor's daily and weekly quality control reports, SIGIR found them to be insufficient. For example, the contractor provided a total of only 10 daily quality control reports. Even though the quality control reports contained project specific information, the lack of a sufficient number of quality control reports is inadequate for an effective quality management program.

The government quality assurance program was effective in ensuring that the renovation of the Haditha General Hospital project was adequate. The U.S. Army Corps of Engineers quality assurance representatives maintained daily quality assurance reports, which documented deficiencies identified at the site. SIGIR found the quality assurance reports to be sufficiently complete, accurate, and timely. In addition to containing project-specific information to document construction progress and highlight deficiencies, the quality assurance representatives also supplemented the daily quality assurance reports with detailed photographs that reinforced the narrative information provided in the reports. Further, the quality assurance team followed up on any reported deficiencies to confirm the contractor took the necessary corrective actions. The Gulf Region Central's quality assurance program compensated for the inadequate contractor quality control program and is ensuring the successful renovation of the Haditha General Hospital.

4. Sustainability was addressed in the contract requirements. The contract required a one-year warranty for all materials and equipment and commonly offered extended warranties for material, equipment, and machinery purchased. In

addition, the contract required operations and maintenance manuals, written in Arabic and English, including standard operating procedures for all equipment and systems, and recommended spare parts lists for all equipment. Finally, the contract required the contractor to conduct specific operations and maintenance training appropriate to the facilities and equipment installed, constructed, or rehabilitated.

Because the end result of this renovation and expansion project will be a larger hospital servicing more patients, the need for increased power sources will also increase. Because permanent power is unreliable in this area, the primary power source will need to be generators, which require a significant amount of diesel fuel to operate. As of SIGIR's site visit, the contractor had not calculated the amount of fuel required to run the generators 24 hours per day. This calculation should be completed during the design phase; however, as mentioned earlier, the design submittals are behind schedule. Once it has been calculated, this information needs to be provided to the hospital administration and the Ministry of Health so they can properly plan to have diesel fuel readily available.

5. The Haditha General Hospital project results, to date, are consistent with the original contract objectives to renovate and expand the hospital. If current renovation and construction practices are continued throughout the course of the project, this hospital will be able to adequately provide health care to the local Iraqi citizens it serves. Specifically, the renovation and expansion will increase the number of patients the hospital can support and will improve the mechanical, electrical, and structural systems within the hospital.

Recommendations and Management Comments. This report does not contain any negative findings or recommendations for corrective action. Although management comments were not required, the appropriate Gulf Region Division personnel reviewed the report and found it to be factually correct.

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Introduction

Objective of the Project Assessment

The objective of this project assessment was to provide real-time relief and reconstruction project information to interested parties to enable appropriate action, when warranted. Specifically, the Special Inspector General for Iraq Reconstruction (SIGIR) determined whether:

1. Project components were adequately designed prior to construction or installation;
2. Construction or rehabilitation is in compliance with the standards of the design;
3. Adequate quality management programs are being utilized;
4. Sustainability was addressed in the contract or task order for the project; and
5. Project results are or will be consistent with their original objectives.

Pre-Site Assessment Background

Contract, Costs and Payments

The Haditha General Hospital renovation and expansion project was initiated under Contract W917BG-08-C-0011, dated 11 December 2007, a firm fixed price construction contract in the amount of \$3,742,384 funded through the Economic Support Fund program. The contract was between the U.S. Army Corps of Engineers (USACE), Gulf Region Central (GRC) and a local contractor. After receiving the Notice to Proceed, the contractor was to complete the project in 365 days. The original contract was broken down into contract line items (CLINs), which were subcategories of the estimated Bill of Quantities (BOQ). For a detailed list of the CLINs for the original contract, see Appendix B.

Contract Modification P00001, dated 28 September 2008, was awarded after the Haditha General Hospital administrator found the original contract's Scope of Work deficient and did not meet the needs of the hospital. The stated purpose of the modification was to revise the Scope of Work by deleting CLINs on the original BOQ and adding revised changes. A detailed breakdown of the deletions and additions is summarized in Appendix C. This modification increased the total cost of the contract to \$5,033,791 and extended the completion date from 16 February 2009 to 15 August 2009.

Project Objective

In June 2007, representatives from the Al Anbar Provincial Reconstruction Team and the USACE GRC, in consultation with the Iraqi provincial Director General (DG) of Health and Haditha General Hospital representatives, outlined the needs and objectives for this project. Specifically, there was an urgent requirement to provide additional medical services for the Haditha community. The DG of Health stated there was a need for a second hospital within the city, which he promised to pursue through the Ministry of Health. With regards to the existing Haditha General Hospital, which suffered significant insurgent and Vehicle Borne Improvised Explosive Device (VBIED) damage in 2005, it was agreed the best course of action was to renovate and expand the hospital (Site Photo 1).



Site Photo 1. VBIED damage to Haditha General Hospital (Courtesy of USACE)

According to GRC documentation, the justification for this project is that, after renovation and expansion is complete, “this Hospital will be set for 10 years” and will “be a complete day-and-night change for the hospital, allowing them to much better serve their public.”

Description of the Facility (Pre-Construction)

The description of the facility pre-construction was based upon information obtained from the contract, USACE and Iraqi Transition Assistance Office documentation.

From the beginning of the war through 2006, the city of Haditha was one of hottest spots in western Iraq in terms of insurgent activity. Located approximately 350 kilometers west of Baghdad, Haditha is a river-side community with an estimated population of 150,000.

The hospital, located in the heart of the city, is a sprawling single-story complex spread out over a city block about 500 meters on each side (Figure 1). It consists of eight interconnected wings, which were built at different times. The complex also includes two other clinic buildings, storage, morgue, ambulance garage, housing, guardhouse, and generators. A large area on the eastern side of the complex allows for possible expansion.



**Figure 1. Aerial photo of the Haditha General Hospital
(Courtesy of USACE)**

Prior to the war, the hospital was a relatively well-maintained and supplied facility. A lack of many medicines because of the sanctions from the first Gulf War caused the hospital and its community to suffer, but the hospital was fully staffed and the structure was maintained. Also, since 2003, this hospital suffered severely from a lack of adequate funding for repairs and maintenance. In addition, according to hospital staff, insurgents took over the hospital in 2005 to use as a base of operation. This led to the hospital only being able to perform basic care because patients and staff members were afraid and intimidated while insurgents controlled the hospital.

By late 2005, a joint operation by Coalition Forces and the Iraqi military cleared the insurgents from the hospital and improved security conditions in the area; however, the hospital suffered tremendous damage during the combat operations.

Currently, the hospital is staffed at about 80%. There is an acute shortage of nearly all medicines and medical supplies, and many pieces of equipment are in a state of disrepair. The emergency room has the most severe problems, including a lack of supplies and working equipment.

GRC representatives performed an updated assessment of the hospital in June 2008, which determined that the VBIED explosion and subsequent fire in 2005 devastated the hospital's entire Logistics and Support facility. This left the hospital without a kitchen, laundry, and adequate storage. The hospital is resupplied every six weeks by the Provincial Ministry of Health in Ramadi, which necessitates hospital staff to use patient care facilities as storage, thereby reducing their in-patient capacity from 100 beds to approximately 60 beds. The entire facility is without a working Heating, Ventilation, and Air Conditioning (HVAC) system, leaving patients exposed to cold winter and excruciatingly hot summer temperatures. The operating rooms are old, in major disrepair, and need to be replaced; however, an unstable foundation made repair impossible. The nursery is small, only accommodating two incubators, and needs to be expanded to eight incubators. The radiology facility is separate from the emergency department, out-patient clinics and the operating rooms; therefore, a new centrally located imaging facility is required. The existing laboratory is inadequate for the hospital's requirements and needs to be expanded. In addition, the hospital is in desperate need of a working incinerator because currently there is no means of disposing of biohazards and other dangerous waste that accumulate daily (Site Photo 2).



Site Photo 2. Existing hospital incinerator and unsecured medical waste
(Courtesy of USACE)

The existing hospital buildings are typical of most Iraqi construction, consisting of concrete block walls with a mortar/plaster finish. The typical interior construction consists of tile floors and partially tiled walls with painted plaster finish on the remaining walls and ceilings. The

complex has one concrete parking area for the ambulances; while the patient parking area consists of gravel and has poor drainage.

Statement of Work

The revised Statement of Work (SOW) and BOQ were intended to reflect a more detailed cost breakdown of the work set forth in the Price Schedule. The revised SOW and BOQ included an investigation phase, as well as, a design and construction phase. The BOQ required the following work items:

- Renovation of utilities, emergency room wing, plumbing, electrical/HVAC, architectural (i.e. doors/windows, ceilings/walls/floors, and roof), administration building and laboratories, maternity wing, men's ward, women's ward, patient ward, existing intensive care unit (ICU), existing surgery wing, outpatient clinic, VBIED-damaged ward, and staff housing
- Construction of ICU wing expansion, surgery wing additions, new morgue, controlled climate storage addition, general storage addition, new family housing (15 houses), and new duplex singles housing (3 duplexes), expansion of ambulance parking, and installation of a 5,000 liter fuel tank

The SOW required the contractor to supply the expertise, materials, labor, and equipment necessary to design and construct the renovation of the existing buildings and construction of the new additions to the Haditha General Hospital facilities. The work included all civil, structural, electrical, plumbing, and architectural work to renovate designated existing buildings, construct new additions to existing buildings, and construct new free-standing buildings.

For an illustration of the hospital, upon completion of all renovation and construction work, including the future phase of construction, see Figure 2.

The modification to the contract required the demolition of the VBIED damaged wards of the hospital as well as the existing surgery wing. The VBIED wards would be replaced by a new two-story administration and logistics building which will house the laundry, kitchen and consolidated storage on the first floor, with administration and laboratory on the second floor. The surgical wing will include three operating rooms and their supporting facilities as well as five new four bed-surgical recovery wards, three female and two male. The imagery wing will include ultrasound, x-ray and CT scanner equipment, as well as all supporting facilities.

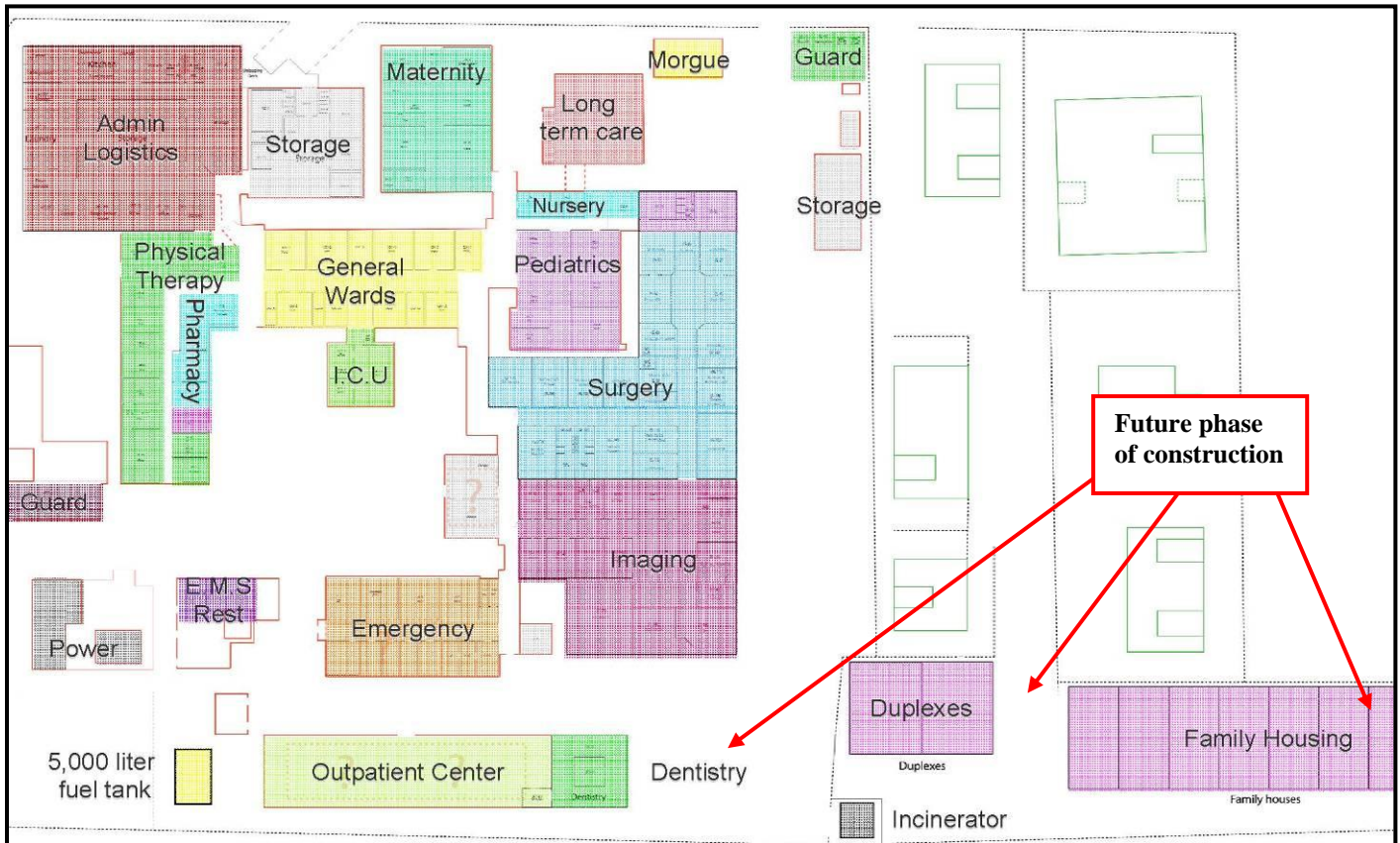


Figure 2. Illustration of Haditha General Hospital after completion of renovation and construction

Current Project Design and Specifications

The revised SOW required the contractor to incorporate the results of the assessment into the final design. More specifically, to update the concept drawings with changes identified in the assessment. In addition, the contractor was to fully document existing conditions, which included the use of digital pictures with descriptions. A soil analysis must be performed to determine the bearing capacity of the foundations, slabs on grade, and pipe design requirements. Further, the contractor must complete and submit design drawings in a prioritized sequence allowing the follow-up construction phase to begin prior to design completion (i.e. structural design before finishes).

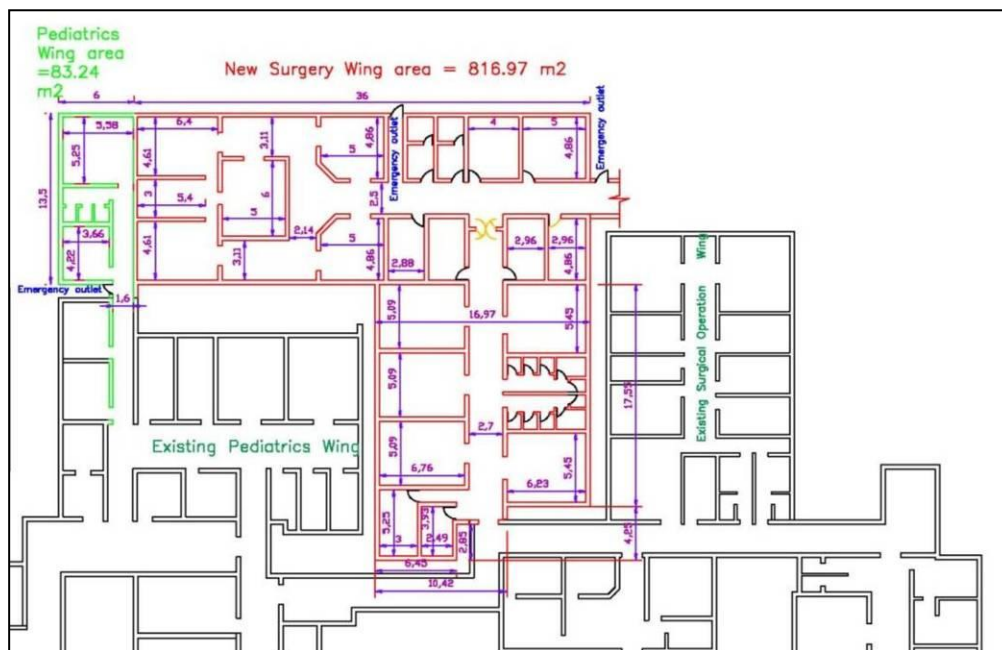
The revised SOW also identified the following specific design considerations:

- complete site plan, including access
- determine excavation and fill requirements based on the survey and required finish elevations
- design must include all features of work required by the SOW
- complete design of concrete foundation plans to include elevations, thickness, and reinforcement based on soil analysis and test results
- design storm water drainage plan, including site grading and sloping
- complete design of facilities and buildings, including structural, architectural, electrical, and mechanical details

According to the contract, which required repair and refurbishment, the standards of the original design is to be used. Materials and equipment requiring replacement will be replaced with

equipment that meets the original design intent of the facility, if not specified in the SOW or BOQ. However, where new material or equipment has been specified in this project, or if the original material or equipment is determined to be inadequate for the proposed service, new items will be specified to Iraqi or equivalent International codes and standards.

On 29 May 2008, the contractor submitted the revised proposal for the renovation and additions to the Haditha General Hospital project. The contractor included several preliminary floor plans for the proposed additions (Figures 3 and 4). The contract's BOQ provided enough information and detail for the contractor to renovate the hospital without detailed designs.





Photos 3 and 4. Exterior of the surgery wing and outpatient clinic buildings

The parking lot had no effective means of channelization or control of internal circulation of traffic. Vehicles were parked in a haphazard manner, which reduced the number of parking spaces available. The parking area was surfaced with dirt and gravel, and had no provisions for surface drainage. Because of the distance from the parking lot to the entrance and the dirt and gravel surface, patients are forced to traverse uneven muddy ground.

Administration Wing

The administrative wing contains the offices for the hospital administration staff. The structure consists of a reinforced concrete frame in-filled with concrete block. In keeping with local practice, all concrete block in the facility is plastered with a cement mortar or gypsum material to create a uniform finish on the exterior and interior of the wall. It appears that most of the renovation work in this area of the hospital has been completed. The walls have been painted and a ceramic tile has been installed in the main corridor to a height of approximately one meter (Site Photo 5). According to the USACE GRC representative, the flooring was in good condition and was not replaced. The renovation of the office included new lighting, ceiling fans, and finishes (Site Photo 6). The contractor representative advised SIGIR that additional renovation was being performed for the administrator's office under a separate contract with the hospital.



Photos 5 and 6. Views of the hospital administration building interior

The renovation of the administration wing included an upgrade to the electrical system. SIGIR noted the installation of what appeared to be new wire molding, outlets, light fixtures, and new main distribution panels (MDPs) (Site Photo 7). The MDPs were situated at a reasonable location and were reasonably secure. An intercom system was installed in some areas of the hospital. According to the contractor representative, the system was new; however, due to the careless over-painting of the components, the inspection team could not determine if the equipment was in fact new (Site Photo 8).



Site Photos 7 and 8. Installation of new wire molding, outlets, light fixtures and new main distribution panels (left) and careless over-painting of intercom system (right).

VBIED-Damaged Ward Renovation

At the time of the inspection, no work had been performed in the ward previously damaged by the VBIED. It appeared that the ward had sustained heavy damage due to the explosion and resulting fire (Site Photo 1). Most of the interior plaster was scorched or covered with heavy soot. Due to time limitations on site, SIGIR could not perform a structural assessment of the building; however, previous GRC documentation stated that it is not feasible to repair the existing structure. SIGIR found no evidence during the inspection to contradict this finding.

Men's Ward and Women's Ward Renovation

The men's and women's wards appeared to consist of the same type of concrete frame and concrete block infill construction. The main hallways of both wards were renovated with new finishes on the ceiling and walls. The ceiling and walls were painted and ceramic tile installed in the main corridors and most rooms to a height of approximately one meter (Site Photo 9). According to the USACE GRC representative, the flooring was in good condition and was not replaced.



Site Photo 9. Typical ceiling and wall painting and ceramic tile installation.

The patient's rooms have been repainted and the electrical systems have been upgraded. There appeared to be new wire molding installed on the walls, and the light fixtures and ceiling fans appeared to have been recently installed. At the time of the inspection, all of the electrical fixtures appeared to be functioning.

SIGIR noticed a moderate amount of modern medical equipment requiring electricity; specifically, several heart monitors and defibrillator machines (Site Photo 10). This equipment appeared to be supplied with power from the renovated electrical system.

Several of the common restrooms were kept in an unsanitary manner. At least one lavatory in the common restroom between the wards appeared to be leaking and there was standing water on the floor (Site Photo 11). Due to time limitations, SIGIR could not determine if the leak was in a previously renovated area or if the contractor was required to perform additional work, including repair of the lavatory, under the re-scoped portion of the contract. However, there is a significant potential for germs and the spread of disease from the use of the restrooms.



Photos 10 and 11. Heart monitors and defibrillator machines (left) and standing water on the restroom floor (right).

Maternity Wing Renovation

The maternity wing was renovated with new finishes on the ceiling and walls. The ceiling and walls were painted and ceramic tile installed in the main corridors and rooms to a height of approximately one meter. According to the USACE GRC representative, the flooring was in good condition and was not replaced.

The maternity wing was in operation at the time of the inspection, with several rooms in use and the remainder appearing operational. During the site visit, SIGIR noticed an unsecured oxygen tank in one of the rooms, which represents a significant concern both from potential toppling and rupture, and as a serious fire hazard (Site Photo 12).

The renovation of the wing included an upgrade to the electrical system. SIGIR noted the installation of what appeared to be new wire molding, outlets, and light fixtures.



Site Photo 12. Unsecured oxygen tank in maternity wing

Fire Safety

Measures to improve fire safety were included throughout the facility, including in the men's and women's wards and the maternity wing. The contractor installed fire extinguishers, which appeared to be new and fully charged (Site Photo 9). The contractor representative stated a fire alarm system was installed and functioning properly (Site Photo 13).



Site Photo 13. Installation of fire alarm system.

General Observations

The general condition of the Haditha General Hospital indicated a general lack of maintenance and cleaning. Considering the importance of keeping a hospital a sterile environment, the hospital's unsanitary restrooms and permissiveness regarding smoking present significant challenges to doctors, patients, and visiting family members. One possible reason for the unsanitary restrooms is usage that exceeds normal capacity. During the site visit, SIGIR noticed an extraordinary amount of family members of patients. According to the USACE GRC representative, the hospital lacks enough nurses to take care of some patients; consequently, family members are relied upon to provide unskilled care.

At the time of the site visit, it appeared that only minor renovations had been performed to the hospital. The majority of the renovations consisted of upgrades to the electrical system including installation of new main panels, fixtures, and ceiling fans; repair of the restroom facilities; repainting the interior and exterior; and repair of several doors and windows. The renovation work that has been partially finished appears to be adequately constructed.

Project Quality Management

Contractor's Quality Control Program

Department of the Army Engineering Regulation (ER) 1180-1-6, dated 30 September 1995, provides general policy and guidance for establishing quality management procedures in the execution of construction contracts. According to ER 1180-1-6, "...quality construction is a combined responsibility of the construction contractor and the government."

The contract required that the contractor provide a quality control (QC) plan, which would identify personnel, procedures, control, instructions, tests, records, and forms to be used. The contractor submitted the QC plan on 25 December 2007, which covered all construction

operations, both on and off site, including work by subcontractors, fabricators, suppliers, and purchasing agents. The QC plan utilized a four phase control program consisting of a preparatory phase, an initial phase, a follow-up phase, and a completion phase.

The preparatory phase of the QC plan included items such as:

- review contract drawings and specifications
- check materials/equipment are tested, submitted, and approved
- discussion of controlling repetitive deficiencies
- documenting construction tolerances and workmanship standards

The initial phase of the QC plan included items such as:

- check the work is in full compliance with contract
- verify level of workmanship
- resolve all differences
- check of safety to include compliance with hazard analysis

The follow-up phase of the QC plan included daily checks to ensure continuing compliance with contract requirements, including cost-effectiveness, efficiency of operations, safety, control testing, and corrective actions. Implemented inspection checks will be recorded by the contractor's QC documentation system.

At the completion phase of the QC plan the Site Quality Manager conducts an inspection of the work. The work is inspected for conformance to plans, specifications, quality, workmanship, and completeness. A punch list is issued and includes a summary of work not properly completed.

The contract required that the contractor maintain weekly progress reports and construction inspection reports. The contract required the reports include significant construction activities, such as daily site work, materials procured and received, actual versus planned progress recorded on the schedule, site and progress photos, construction inspection reports, testing and inspection reports, and contractor's manpower schedule, which includes the number of workers. The USACE GRC representatives provided SIGIR with 10 daily QC reports, which covered the months of February and March 2008. Even though renovation work was being completed in September and October 2008, the contractor had not provided any daily QC reports for that time period. While the submitted daily QC reports contained construction photographs and brief descriptions of work performed, they were far too sporadic to provide meaningful information to the GRC project engineer. In addition, the QC reports did not identify any significant construction deficiencies.

SIGIR's review of the contractor's QC plan and reports determined its overall QC program was inadequate.

Government Quality Assurance

The USACE ER 1110-1-12 and PCO Standard Operating Procedure (SOP) CN-100 specified requirements for a government QA program. Similar to the QC program, a crucial oversight technique is presence at the construction site.

As mentioned throughout this report, the security situation in and around this project has been extremely volatile in the past, which severely limited the ability of Resident Office representatives to perform the type of QA oversight this project requires. The constant threat of attacks either on site or enroute curtailed the frequency and duration of Resident Office representatives' project site visits.

The USACE provided SIGIR with 14 daily QA Representative (QAR) reports from the months of September and October 2008. The reports provided detailed information regarding the progress of renovation and the quality of construction. The QAR provided written reports, including photographs, which documented activities being performed and deficiencies in construction quality or materials. The daily QA reports identified the safety concerns, inferior workmanship, and the progress of construction. For example, the QAR identified potentially dangerous safety concerns with the contractor's use of electrical connections and the corrective actions taken (Site Photos 14-17).



Site Photos 14 and 15. Unsafe electrical practices used by the contractor and captured in daily QA reports (Courtesy of USACE)



Site Photos 16 and 17. Corrective actions taken by contractor as a result of daily QA reports (Courtesy of USACE)

GRC's QA program compensated for the inadequate contractor QC program and is ensuring the successful renovation of the Haditha General Hospital.

Sustainment

Commissioning and Startup

The contract required the contractor to provide an operations and maintenance (O&M) manuals, written in Arabic and English, to the USACE prior to startup of any portion of the facilities. The manuals must include SOPs for all equipment and systems, standard maintenance procedures, and recommended spare parts lists for all equipment.

Training

The contract required that after construction is complete, but before final acceptance and start of operations, the contractor conduct specific O&M training appropriate to the facilities and equipment installed, constructed, or rehabilitated. For example, the contract required a three day on-site training session to demonstrate normal O&M procedures for each element of the system to appropriate technical representatives and a minimum of three O&M manuals written solely in Arabic detailing all training materials for each site. The manuals will both verbally and graphically explain the system, including frequency of normal preventative maintenance operations.

The contract's SOW required the contractor and/or equipment manufacturer to provide training on major equipment components such as the electrical systems and generators. For the electrical systems, "competent instructors" are to provide "full instruction to designated Government personnel in the adjustment, operation, and maintenance of the specified systems and equipment, including pertinent safety requirements."

Proper and complete training of government officials and hospital staff will be a key to successful long-term operations of the equipment.

Operations and Maintenance Issues

The contract required the contractor to provide O&M support for all facilities and equipment installed, constructed, or rehabilitated in the scope of this project. This support will be provided during the construction, startup, and commissioning phases of the project, and continue for a period of 90 days following the issuance of the Letter of Project Completion.

Warranties

The contract required the contractor to provide and certify warranties in the name of the appropriate ministry of all material or equipments, which includes any mechanical, electrical, and/or electronic devices, and all operations for 12 months after final acceptance of the project. In addition, the contractor will provide any other commonly offered extended warranties for material, equipment, and machinery purchased.

Consumables

After reviewing the revised SOW, SIGIR has concerns with the ability of the hospital to provide continuous fuel supply for a larger generator(s). From the BOQ, the new electrical power generation system is specified to be "sufficient" to provide continuous power to the entire hospital. Although "sufficient" is not quantifiable and the design of the system has not been submitted, the anticipated fuel consumption of the generator for an expanded hospital will be much greater than that of the existing hospital. The amount of fuel required to run the

generator(s) 24 hours per day should be calculated during the design phase and passed to the hospital administration and Ministry of Health.

Conclusions

Based upon the results of our site visit, SIGIR reached the following conclusions for our assessment objectives. The assessment determined that:

1. The contractor submitted a revised proposal for the renovations and additions to the original Haditha General Hospital project, which included preliminary floor plans for the proposed additions. The contract's bill of quantities provided enough information and detail for the contractor to renovate the hospital without detailed designs.

At the time of SIGIR's site visit on 4 November 2008, the contractor had not yet provided the U.S. Army Corps of Engineers with the required design drawings for the new construction work based on the revised Statement of Work. The submittals were more than a month behind schedule and were not expected for at least another two weeks.

2. At the time of SIGIR's site visit, it appeared that only minor renovations had been completed at the hospital. Most of the renovations were upgrades to the electrical system, including installing new main panels, fixtures, and ceiling fans; repairing the restroom facilities; repainting the interior and exterior; and repairing several doors and windows. Based on the site visit and the review of the U.S. Army Corps of Engineers' quality assurance reports, SIGIR's determined that the renovation work completed appeared adequately constructed and consistent with the contract's bill of quantities.
3. The contractor's quality control plan was adequate to guide the contractor's quality management program. The contract required that the contractor maintain weekly progress reports and construction inspection reports. After reviewing the contractor's daily and weekly quality control reports, SIGIR found them to be insufficient. For example, the contractor provided a total of only 10 daily quality control reports. Even though the quality control reports contained project specific information, the lack of a sufficient number of quality control reports is inadequate for an effective quality management program.

The government quality assurance program was effective in ensuring that the renovation of the Haditha General Hospital project was adequate. The U.S. Army Corps of Engineers quality assurance representatives maintained daily quality assurance reports, which documented deficiencies identified at the site. SIGIR found the quality assurance reports to be sufficiently complete, accurate, and timely. In addition to containing project-specific information to document construction progress and highlight deficiencies, the quality assurance representatives also supplemented the daily quality assurance reports with detailed photographs that reinforced the narrative information provided in the reports. Further, the quality assurance team followed up on any reported deficiencies to confirm the contractor took the necessary corrective actions. The Gulf Region Central's quality assurance program compensated for the inadequate contractor quality control program and is ensuring the successful renovation of the Haditha General Hospital.

4. Sustainability was addressed in the contract requirements. The contract required a one-year warranty for all materials and equipment and commonly offered extended warranties for material, equipment, and machinery purchased. In addition, the contract required operations and maintenance manuals, written in Arabic and English, including standard operating procedures for all equipment and systems, and recommended spare parts lists for all equipment. Finally, the contract required the contractor to conduct specific operations and

maintenance training appropriate to the facilities and equipment installed, constructed, or rehabilitated.

Because the end result of this renovation and expansion project will be a larger hospital servicing more patients, the need for increased power sources will also increase. Because permanent power is unreliable in this area, the primary power source will need to be generators, which require a significant amount of diesel fuel to operate. As of SIGIR's site visit, the contractor had not calculated the amount of fuel required to run the generators 24 hours per day. This calculation should be completed during the design phase; however, as mentioned earlier, the design submittals are behind schedule. Once it has been calculated, this information needs to be provided to the hospital administration and the Ministry of Health so they can properly plan to have diesel fuel readily available.

5. The Haditha General Hospital project results, to date, are consistent with the original contract objectives to renovate and expand the hospital. If current renovation and construction practices are continued throughout the course of the project, this hospital will be able to adequately provide health care to the local Iraqi citizens it serves. Specifically, the renovation and expansion will increase the number of patients the hospital can support and will improve the mechanical, electrical, and structural systems within the hospital.

Recommendations and Management Comments

This report does not contain any negative findings or recommendations for corrective action. Although management comments were not required, the appropriate Gulf Region Division personnel reviewed the report and found it to be factually correct.

Appendix A. Scope and Methodology

SIGIR performed this project assessment from October through December 2008 in accordance with the Quality Standards for Inspections issued by the Council of the Inspectors General on Integrity and Efficiency. The assessment team comprised two engineers/inspectors and two auditors/ inspectors.

In performing this Project Assessment SIGIR:

- Reviewed contract documentation to include the following: Contract, Modifications, including Statements of Work, Invoices, and Material Inspection;
- Reviewed the available design packages (drawings and specifications);
- Interviewed the U.S. Army Corps of Engineers Gulf Region Division and Gulf Region Central personnel; and
- Conducted an on-site assessment and documented results at the Haditha Hospital project in Haditha, Iraq.

Scope Limitation. Due to security concerns, SIGIR performed an expedited assessment. The time allotted for the hospital was approximately 45 minutes; therefore, a complete review of all work completed was not possible.

Appendix B. Contract Line Items for Original Contract

The following is a detailed listing of the contract line items for the original contract:

ITEM	SUPPLIES/SERVICES	UNIT PRICE
0001	Mobilization and De-mobilization	\$180,000
0002	Investigation and Surveys	\$37,636
0003	Detailed Design	\$65,863
0004	Utilities Renovation	\$123,258
0005	Emergency Room Wing Renovation	\$56,454
0006	Administration Building and Laboratory Renovation	\$92,208
0007	Maternity Wing Renovation	\$58,336
0008	Men's Ward Renovation	\$41,400
0009	Women's Ward Renovation	\$42,341
0010	Patient Ward Renovation	\$45,163
0011	Existing ICU Renovation	\$25,404
0012	Existing Surgery Wing Renovation	\$49,868
0013	Outpatient Clinic Renovation	\$61,159
0014	VBIED Damaged Ward Renovation	\$105,381
0015	Staff Housing Renovation	\$92,208
0016	MOD House Renovation	\$50,338
0017	ICU Expansion	\$155,249
0018	Surgery Wing Addition	\$223,464
0019	Construction of a New Morgue	\$59,747
0020	Controlled Climate Storage Addition	\$184,887
0021	General Storage Addition	\$119,494
0022	Extended New Family Houses	\$1,485,452
0023	Extended New Duplexes	\$326,492
0024	Miscellaneous	\$22,582
0025	DBA Insurance	\$38,000
Total Lump Sum Bid:		\$3,742,384

Appendix C. Deletions & Additions to Original Contract

The following is a detailed breakdown of the deletions and additions to the original contract:

Item Number	Supply/Service	Added Contract Amount	Deleted Item Number	Additional Modification	Deleted Contract Amount
0001B	Mobilization and Demobilization (Amended scope)	\$24,700	0004	Utilities Renovation	\$123,258
0002B	Investigation and Survey (Amended scope)	\$20,000	0012	Existing Surgery Wing Renovation	\$49,868
0003B	Detailed Design (Amended scope)	\$30,000	0014	VBIED Damaged Ward Renovation	\$105,381
0018B	Surgery Wing Additions (Additional Expansion needed)	\$550,000	0015	Staff Housing Renovation	\$92,208
0026	Demolish VBIED Damaged Wards (Remove Debris)	\$100,700	0016	MOD House Renovation	\$50,338
0027	Demolish Existing Surgery Wing (Remove Debris)	\$42,000	0017	ICU Expansion	\$155,249
0028	Construct Imaging Center to house Cat Scan & X-Ray	\$670,800	0019	Construction of a New Morgue	\$59,747
0029	Install Hospital wide HVAC system	\$100,000	0020	Controlled Climate Storage Addition	\$184,887
0030	Provide Hospital wide Septic System Renovation	\$130,900	0021	General Storage Addition	\$119,494
0031	Replace Ex. Electrical Power Gen. & Dist. Systems	\$530,500	0022	Extended New Family Houses	\$1,485,452
0032	Renovate and/or Replace Water Storage & Dist. System	\$50,000	0023	Extended New Duplexes	\$326,492
0033	Install Hospital wide Communication System	\$30,000	0024	Miscellaneous	\$22,582
0034	Install Hospital wide Intercom System	\$40,500			
0035	Replace Incinerator	\$81,800			
0036	Construct New 2-Story Admin./ Logistics Building \$1,379,000	\$1,379,000			
0037	DBA Insurance (Amended scope)	\$33,000			
	Total Additions	\$3,813,900		Total Deletions	\$2,774,956

Appendix D. Acronyms

BOQ	Bill of Quantities
CLIN	Contract Line Item
DG	Director General
ER	Engineering Regulation
GRC	Gulf Region Central
HVAC	Heating, Ventilation, and Air Conditioning System
ICU	Intensive Care Unit
MDP	Main Distribution Panel
O&M	Operations and Maintenance
QA	Quality Assurance
QAR	Quality Assurance Representative
QC	Quality Control
SIGIR	Special Inspector General for Iraq Reconstruction
SOW	Statement of Work
USACE	United States Army Corps of Engineers
VBIED	Vehicle Borne Improvised Explosive Device

Appendix E. Report Distribution

Department of State

Secretary of State

Senior Advisor to the Secretary and Coordinator for Iraq

Director of U.S. Foreign Assistance/Administrator, U.S. Agency for International Development

Director, Office of Iraq Reconstruction

Assistant Secretary for Resource Management/Chief Financial Officer, Bureau of Resource Management

U.S. Ambassador to Iraq

Director, Iraq Transition Assistance Office

Mission Director-Iraq, U.S. Agency for International Development

Inspector General, Department of State

Department of Defense

Secretary of Defense

Deputy Secretary of Defense

Under Secretary of Defense (Comptroller)/Chief Financial Officer

Deputy Chief Financial Officer

Deputy Comptroller (Program/Budget)

Deputy Assistant Secretary of Defense-Middle East, Office of Policy/International Security Affairs

Inspector General, Department of Defense

Director, Defense Contract Audit Agency

Director, Defense Finance and Accounting Service

Director, Defense Contract Management Agency

Department of the Army

Assistant Secretary of the Army for Acquisition, Logistics, and Technology

Principal Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology

Deputy Assistant Secretary of the Army (Policy and Procurement)

Commanding General, Joint Contracting Command-Iraq/Afghanistan

Assistant Secretary of the Army for Financial Management and Comptroller

Chief of Engineers and Commander, U.S. Army Corps of Engineers

Commanding General, Gulf Region Division

Chief Financial Officer, U.S. Army Corps of Engineers

Auditor General of the Army

U.S. Central Command

Commanding General, Multi-National Force-Iraq

Commanding General, Multi-National Corps-Iraq

Commanding General, Multi-National Security Transition Command-Iraq

Commander, Joint Area Support Group-Central

Other Federal Government Organizations

Director, Office of Management and Budget
Comptroller General of the United States
Inspector General, Department of the Treasury
Inspector General, Department of Commerce
Inspector General, Department of Health and Human Services
Inspector General, U.S. Agency for International Development
President, Overseas Private Investment Corporation
President, U.S. Institute for Peace

Congressional Committees

U.S. Senate

Senate Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Foreign Relations
Senate Committee on Homeland Security and Governmental Affairs

U.S. House of Representatives

House Committee on Appropriations
House Committee on Armed Services
House Committee on Oversight and Government Reform
House Committee on Foreign Affairs

Appendix F. Project Assessment Team Members

The Office of the Assistant Inspector General for Inspections, Office of the Special Inspector General for Iraq Reconstruction, prepared this report. The principal staff members who contributed to the report were:

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